

ASTEP

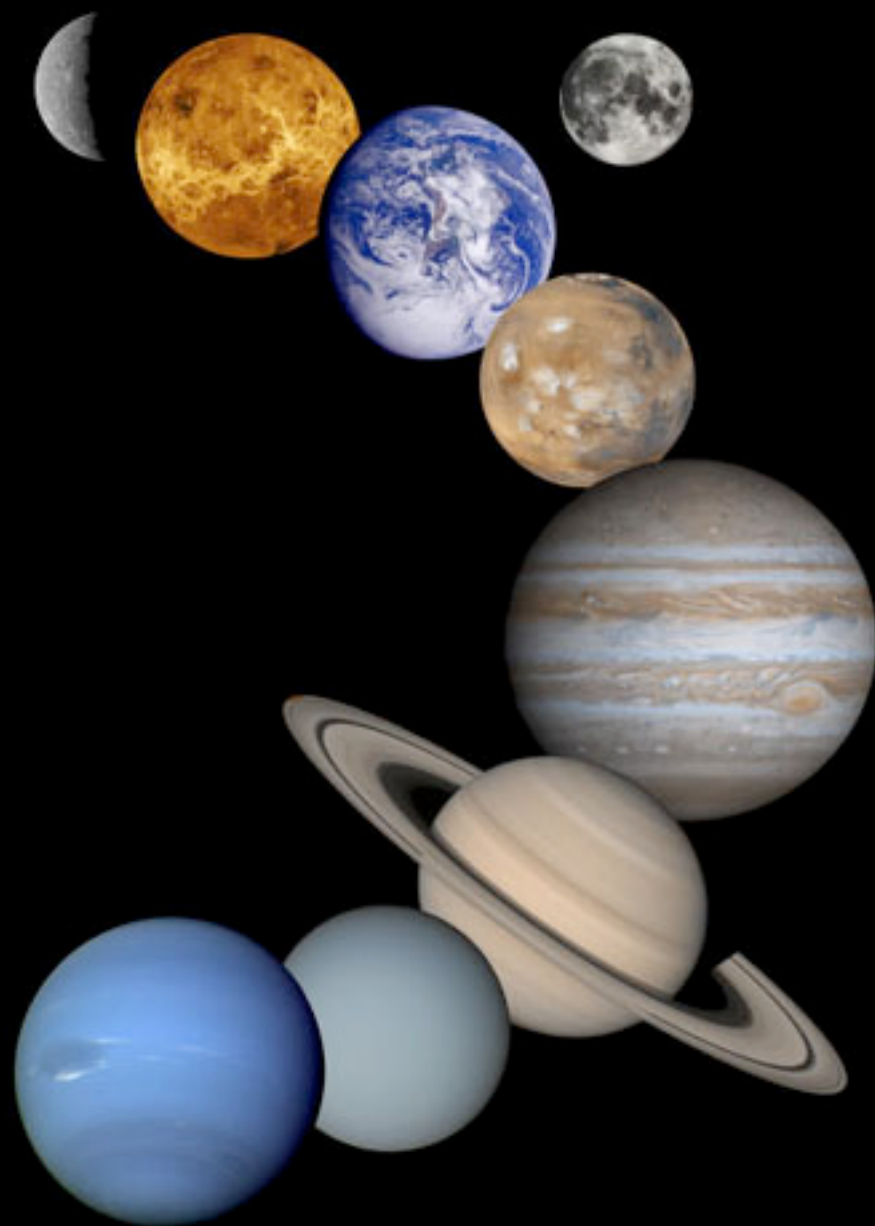


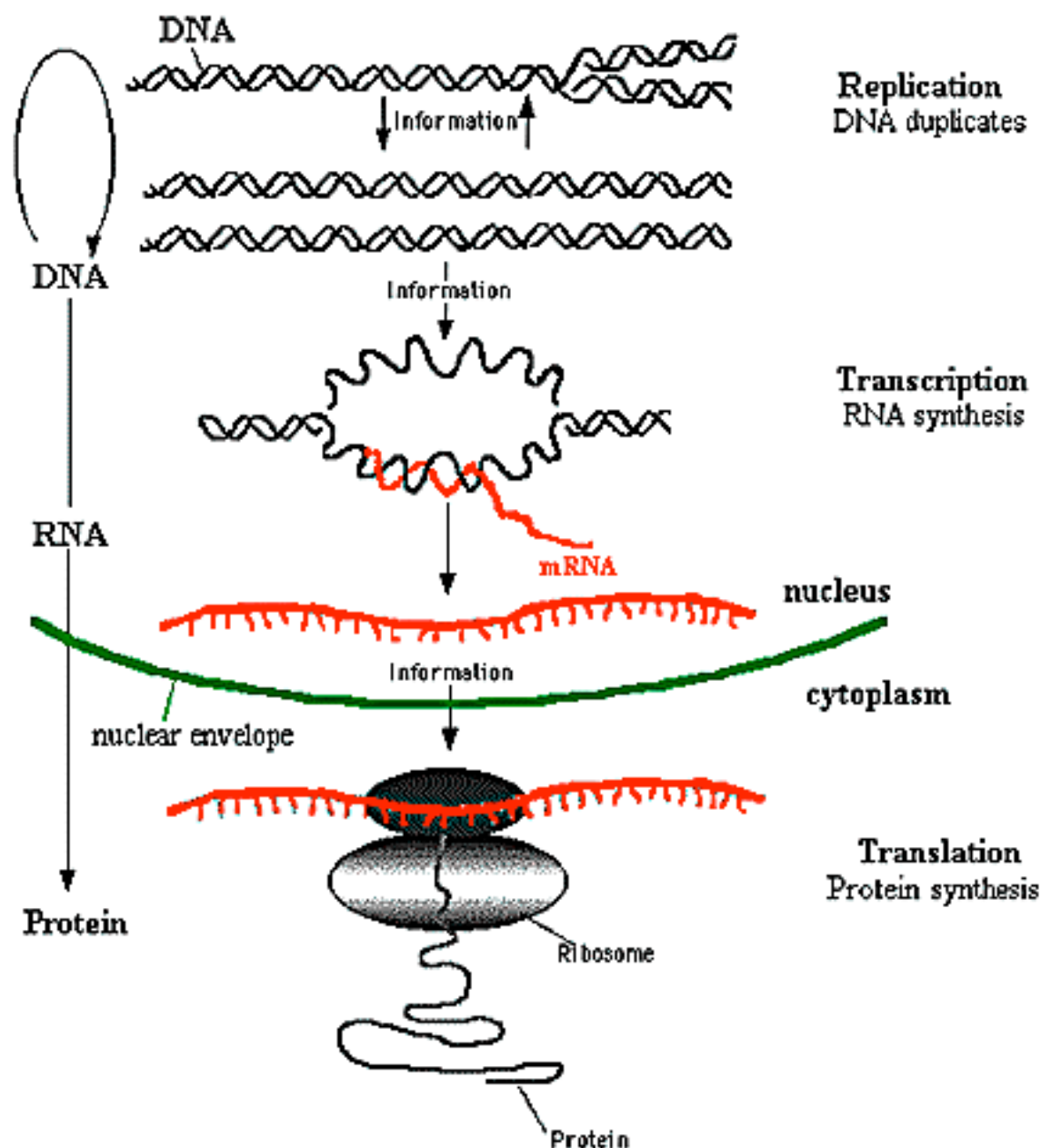
From
Our
World
to
Others

Michael Meyer
*Astrobiology Senior
Scientist*



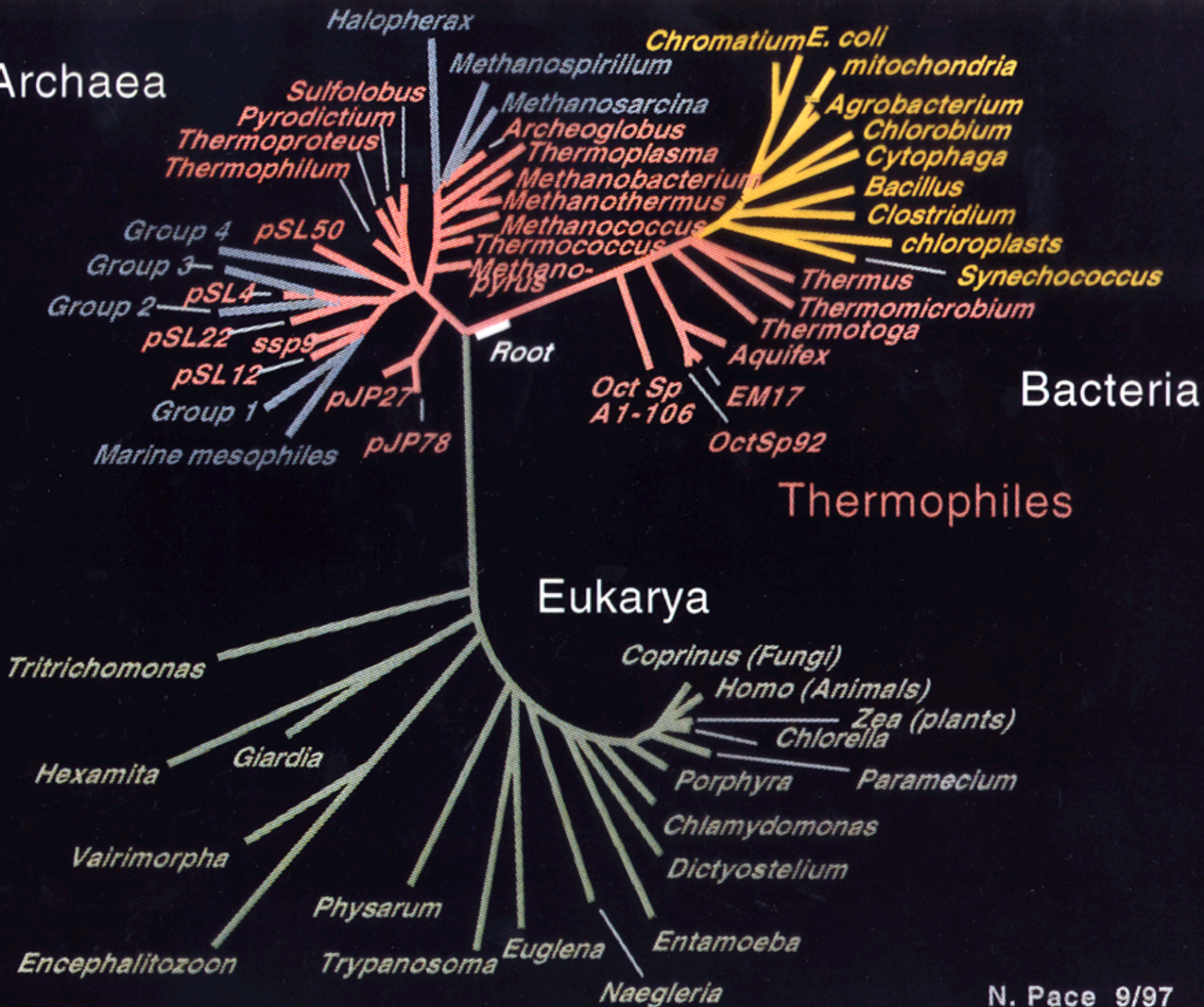


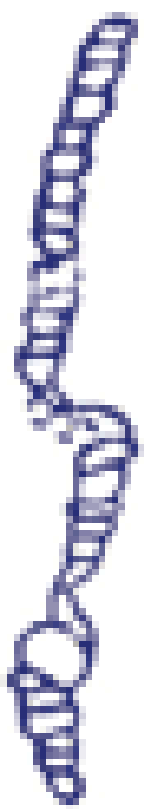
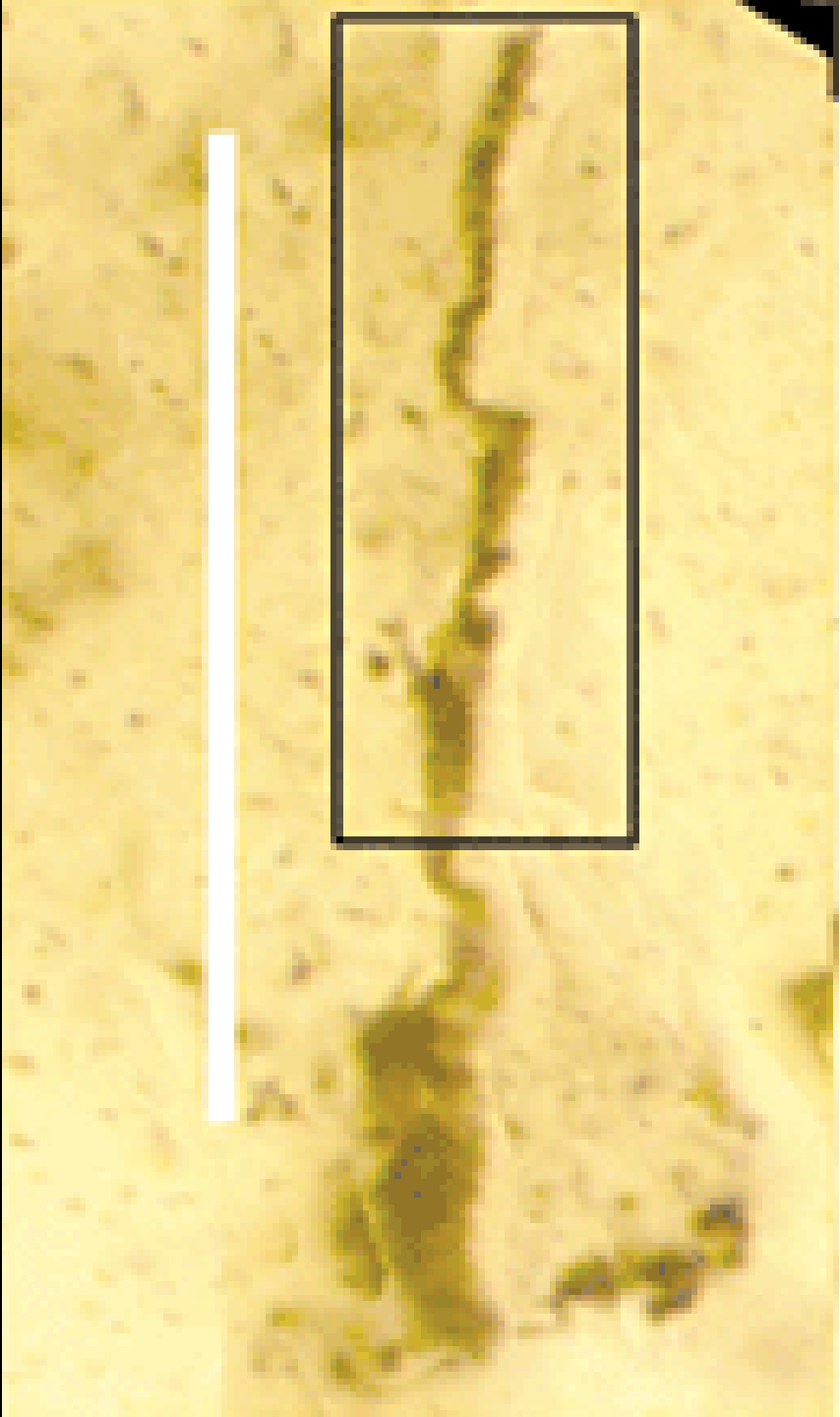




The Central Dogma of Molecular Biology

Archaea





Is there hope?



Astrobiology



Astrobiology addresses three basic questions, which have been asked, in some form, for millennia

- ∅ How does life begin and evolve?
- ∅ Does life exist elsewhere in the universe?
- ∅ What is future of life on Earth and beyond?

Astrobiology Elements

Research and Analysis

- ∅ Exobiology & Evolutionary Biology Program : Research centered on pathways leading to and from the origin of life, and to understand the physical and biological forces that affect biological evolution and the interaction of life with its environment, ultimately to determine the potential and the search strategy for life elsewhere in the Universe

NASA Astrobiology Institute

- ∅ Virtual institute whose members conduct interdisciplinary research as a community yet are geographically dispersed, interacting also with the national and international community

Technology & Development Programs

- ∅ Astrobiology Science & Technology Instrument Development (ASTID): Life-centered perspective in technology development from concept to brass-board
- ∅ Astrobiology Science & Technology for Exploring Planets (ASTEP): Program of science-driven robotic campaigns to extreme environments to develop integrated system, exploration savvy, and astrobiology capabilities for space exploration

On the horizon?



- ∅ **“Weird” Life**
- ∅ **Mars Science Laboratory**
- ∅ **JIMO**
- ∅ **Moon - Mars**
- ∅ **Lake Vostok**
- ∅ **Neptune - underwater fiber optic system**



Earth's Atmosphere Through Time

